

Accurate Voltage Comparator with Voltage-To-Current Converters for Both Reference and Input Voltages

Abstract

A stable voltage that is independent of supply voltage is applied to a pair of current sources. A first current source generates a first current that passes through a first resistor, setting a compare-input voltage. A source-input voltage is applied to the first current source to vary the first current and the compare-input voltage. A second current source generates a stable current that passes through a second resistor, setting a reference voltage. The compare-input voltage and the reference voltage are applied to inputs of a comparator that generates an output voltage that indicates when the source-input voltage causes the compare-input voltage to rise past the reference voltage. The first and second currents track each other over temperature and process variations and are independent of supply voltage. A more accurate comparison of the source-input voltage is thus made.